

1906

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JOURNAL

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Vernon Bailey.

Aug. 1, 1906.

Left Washington at 4:30 C & O
for Wichita Mts. Oklahoma via St.
Louis. Reached Charlottesville,
Va., at dark, Rainy, cool,
clouds on the Blue Ridge.

Golden rods & sunflowers in
blossom & lower leaves of
sassafras turning red.

Aug. 2. Woke up near Huntersville
~~W. Va.~~ and followed the Ohio River
to Cincinnati, then via Indianapolis
reached St. Louis at 9:30 P.M. (about
3 hours late). Took Frisco line
out of St. Louis at 10:16 for
Oklahoma. Good crops across
Indiana & Ill. A cloudy day,
cool & comfortable. Some rain.

Aug. 3. Breakfast at Springfield,
Mo., Fine farming country, slightly
rolling, nearly all cultivated,
small timber lots, rich soil, strong
and flint land in places.
Good crops of corn, clover &
timothy, wheat all harvested -

stubble fields being plowed.
Apple orchards numerous and large
and loaded with beautiful fruit.
Apple trees very thrifty & healthy.
Pear and peach orchards common
but less extensive or thrifty than
the apples. Some plum & cherry
trees. Garden vegetables good.

After passing Aurora we
descended rapidly to a small
river valley & stopped half an
hour at Monett, a small town in
good farming district, hilly,
timber largely scrub oak, black
jacks, oaks, the ridges, and elms
& maples along creeks. Corn fields
& apple orchards predominating.

After crossing Grand River we saw
the first pond of Nelumbo luteum, & beyond
the river bottoms came to big prairie
with such plants as Baptisia, Amorpha
canescens, Petalostemon, Eschscholera,
and prairie grasses. The crops
are mainly corn, wheat & hay.
From this on to Oklahoma City the
country is largely prairie with
timber along the stream bottoms

and over some long ridges. It is all a settled region with large farms and much of the land under cultivation. In a few sections considerable stock is raised, but generally it is a farming region. Much ~~the~~ wild prairie hay is cut & baled and shipped. Corn is the common crop on uplands and on the bottom lands cotton was first seen after crossing the Verdigris River and then was common all the way. It is just in blossom and in fine condition, 2 to 4 feet high. Considerable Millet, Coffer corn & Sargum is raised and an occasional field of Alfalfa is seen. ~~and~~ large fields of broomcorn were seen near Oklahoma City. The grain has been harvested long ago and is in stacks or has been thrashed & only straw stalks remain & the stubble is being plowed. In places considerable has been raised, apparently mostly wheat. Fruit trees are seen at many of the farms but mainly

in small orchards for home use. Some apples are less thrifty than in the Ozark region, but peaches are more abundant and are usually loaded with fine fruit. At Chandler teams were hauling loads of peaches to the station for shipping in cars. We tried them & found them delicious. They sold at 8¢ a basket. A good many young orchards were seen of peach & pear trees in cotton fields.

The soil is mainly heavy red clay, very rich and productive, but of crops & vegetation but not of mammals. No signs of any wild species were seen until a sandy strip of bottoms was crossed at Spencer when prairie hills were first seen. Not a jack rabbit or even a cottontail was seen.

The first reiso tail was seen near Red Fork & they were common the rest of the way. For other bird & plant notes see note book.

Reached Oklahoma City at 7 P.M. - went to Hotel Robach, a very satisfactory place.

Aug. 4. Oklahoma City is a very substantial town of 40,000 people, good stores & hotels & asphalted streets. Did some shopping & took train at 9:30 A.M. for Cache. The country is mainly open and noticeably more arid as we go west. The trees are dwarfed & restricted to creek & river bottoms. They are mainly *Ulmus crassifolia*, *Juglans*, *Populus fremontii*, *Quercus texana*? (Post oak), *Negundo*, plum & grape. On the wide sandy flats of the Canadian River scattered Cottonwoods & willows are the principal timber, but the other species form strips of dense, low forest along the sides of the valley & in side gulches.

The first Mesquits and Caetns were seen just before reaching Cache.

Prairie dogs were first seen near Fletcher, a 20 acre colony a mile west of station, a few more west of Elgin and others at Ft. Sill & Cache. Ground hills were common in many places from Oklahoma to Cache. and two coyotes were seen near Cache.

Quail & scissor tails, mockingbirds, shrikes, crows, meadowlarks & cuckoos are common. The first *Buteo swainsoni* was seen near Ft. Sill.

Corn & cotton are the principal crops, but some grain & considerable sorghum, milo maize, millet & hay are raised. Cotton is generally small & neglected. Much of the land is not cultivated & much that is is rented from Indians & poorly cultivated. At several stations freight cars were being loaded with watermelons and some young orchards are promising.

At Cache we found Mr. Morrison in town, hired a team & started for his place on the Forest Reserve, 12 miles north of town. Started at 3 P.M. & reached there at 7. Rained most of the way, roads slippery but not bad. Found his place in a beautiful valley on Cache Creek close to Elk Mountain.

Aug. 5 Sunday, Rained nearly all day so my man did not come to go for wolves. Staid indoors most of day. Climbed to top of Elk Mtn. & collected plants. Went 550 feet above ranch & not to top. The peak is probably 150 feet higher. The rocks are mainly rough coarse granite, in rounded masses, a great boulders

Aug. 6, Mr. Morrissey, Mr. Wells & his son & I went over to the place where they killed the wolves July 4. Got skulls of the two of the pups & found some of the bones of the old ♀ which they shot but did not find. There were 8 pups. Six were killed and the old male & female. Two pups got away. Found no signs of wolves when these were killed, so went to another creek & set traps. Mr. Wells tells me of his experience with sheep grass with a lot of horses above Ruadosa and 7 miles N. of Clonderoft. It was just like in

Cache 1275
 300
 750

 2425 Elk Mtn.

Aug. 7 Nothing in traps, nothing
 came along but one small possum.
 Rained hard.

Aug. 8 & 9, Nothing in traps and
 no tracks except at one trap
 where coyotes scratched the dirt
 off the spring. Took the trap.
 Went on top of Elk Mountain with
 Mr. Morrissey. The highest peak is a
 great boulder 100 feet high that we couldn't
 get up on. It is 750 feet higher than
 the ranch and the ranch is 300
 feet higher than the Cache, which is
 1275 feet. The mountain is of
 coarse granite in great masses and
 boulders & ledges & cliffs, very
 rough & picturesque! Cold streams
 & springs come out of cracks in the
 rocks. Oak brush & junipers fill
 in the cracks between the rocks
 & grassy meadows & flats are

common.
 Looked over buffalo pasture &
 along creeks for beaver pasture.

Aug. 10 - Packed up & started for
Caehe but the train was late
so we did not get away from
there till 4 P.M. Reached Snyder at 4
& had to stay over night.

Lots of cotton all along, also
corn & popcorn & milowaze
and grain stalks & stubble.

Some fields of grain spoiled in the shocks.
Hard rains have washed the roads
& the railroad is so rough and
uneven the train nearly jumps
the track.

Snyder was blown to bits by a
cyclone 2 years ago & 114 people
killed but has built up again to
a village of 1500. There are several
cotton gins & a compress is being
built.

Aug. 11 Left Snyder at 8:30 AM
+ reached Enid at 3:30 P.M.
The principal interest of the trip
was in passing out of Mesquite
and entering into the humid
division at just before reaching
Hobart and again crossing a
strip of mesquite and cactus country
down the south side of the Cimarron
Valley from near Cherryvale to just
beyond Okemune.

From Cache to Snyder and
from Snyder to near Hobart the
country is very similar, mainly
open plains with much short grass
and scattered mesquites, some
possibly pear, *Yucca glauca* and
Euphorbia marginata, *Psoralea tenuifolia*
and *Suaeda cornosa*. The numerous
rocky buttes and ridges are surrounded
by scrubby post oak, black jack,
and celtis, while along the streams
narrow lines of *Ulmus crassifolia*
Juglans nigra (dwarf), *Populus*
frumonti, *Myrica*, *Salix nigra*
and grape + sumach form ^{windbreak} lines of
timber across the plains.

In going from Snyder to Hobart we
pass through several gaps in the
western extension of the Wichita Mts.
and see scattered ranges and buttes
stretching as far to the west as the eye
can reach. These hills are
almost continuous with the north
line of the escarpment of the Staked
Plains and would form a ready
line of extension for much longer.

The crops from Cache to Snyder
and thence north to Hobart are
mainly cotton, corn, milo maize,
kaffir corn, some millet & a few fields
of alfalfa, melons, sweet potatoes, and
peaches. Grain stacks and stubble
fields are common and in many
fields the grain has rotted in the
shocks from the excessive rains.
Cotton is said to be the best crop
and cotton gins are found at most
of the towns and some bales left
over from last years crop.
Cotton is now in blossom and
looks promising when well tended.
Corn is good & nearly ripe.

Season has been heavy and all crops look well. There has been far too much rain this summer, but usually the climate is dry. The country is well settled and largely under cultivation or pasture. Good sized towns are of frequent occurrence.

Cyclone cellars accompany most of the houses & the corn blaves are generally torn by hail.

From Hobart north to the Canadian River the country is mainly open prairie, or tall grass plains with scant lines of timber along the streams. North of the Canadian river a long stretch of scrub oak covered sandy soil extends west of the way to Carlton north of the North Fork. Then it is prairie again to Enid. Timber along the streams is much the same but the prairie grass is of the tall coarse kind with rarely short grass patches.

Crops are good and cotton continued as far north as Custer City, then only a few small fields were seen north to Eagle City, then no more outway to Enid. Corn & small grains are the principal crops with lots of kafu corn, sorghum, milo maize, and some millet & alfalfa, abundance of peaches and farther northward good apples.

The country is fairly well settled and good farms are numerous.

Enid is quite a town with many substantial buildings, probably 5000 or 6000 people. Had to wait from 3:30 to 8:25 for train to Shattuck and.

Reached Shattuck at 3 P.M. next morning after a tiresome night's ride.

Aug. 12.

Drove out to Mr. W. F. Apper's place at Ivanhoe Lake, 5 miles west of Slathuck and found a delightful place to stay.

The beaver have dammed up Ivanhoe Creek and made a long narrow lake that is full of bass. The river flats are covered in places with fine old cottonwoods and below the lake with a grove of young cottonwoods & willows. The river is a wide bottomed sandy stream that spreads a little water over a great deal of sand. The valley is sandy and ridged by water wash and wind drifts. The prairie river is a gypsum escarpment and back of this is open plains covered with fine grass.

The country is all taken up and farms are scattered over it. A small part of it is cultivated and good crops are raised this year.

There has been too much rain and much grain spoiled in the shock.

We saw no cotton, but were told that considerable is raised & that it was well. There are cotton gins at Shattuck, Woodward, Canadian, Gage and several other towns along the R.R. Broomcorn is the best crop and is raised in great quantities. It sells at 50 to 100 dollars a ton for brooms. As high as 256 cars of broom corn have been shipped in a season from Shattuck.

Good corn is raised in considerable quantities and lots of wheat & oats.

The wheat is sowed in fall, and the plowing is now well along.

Melons and vegetables are raised in considerable abundance and good peach orchards were seen.

Wild goose-plums are abundant on the sand ridges and mustard grapes form thickets, 2 to 4 feet high of stubby bushes loaded with ripe grapes. Another species of smooth leaved grape grows on the trees and almost smooth elm & blackberry trees with its load of vines.

Aug. 13.

Set a beaver corral trap by encircling a bunch of cottonwood trees they had been cutting with wire netting and putting a drop gate across the trail attached to supported by a



Corral 20 feet across & 3 feet high, stapled to trees & staked to ground at edges.

Aug. 14. - No beaver came to the trap last night so we left it set and returned to Shattuck in evening. Mr. Adams is to keep the trap set for a week or two and if it does not work will try a corral trap across a water runway with entrances doors at both sides. He is anxious to get the beaver if it can be done so as not to scare the others. He has many offers of 50 and 100 dollars a pair for beaver to stock streams with, mainly from ranchmen in the counties west of him.

Aug. 15 Left Shattuck at 3 A.M.
and reached Amarillo at 9
Had to wait till P.M. for train
to Saltart on F.W. & D.

The Staked Plains are big and
beautiful as ever with their rich
carpet of short grama grass.
There has been lots of rain & the
numerous basins are full of
water & waders. Sargum,
milo maize & kaffir corn are
the principal crops raised at
the ranches & are looking well.
Some peach orchards of ranches
are bearing fruit, but many trees
show dead tops.

7 Fairy rings on the plains
are abundant & large and
full of big mushrooms.
Some of the rings are 50 or
100 feet across & some of
the mushrooms look to be a foot
across. In some of the rings
there are apparently 100 or more
mushrooms & in all the
circles of dark grass is very
strongly marked.

On leaving Amarillo we follow down
a gulch and soon strike mesquite
which continues in considerable
abundance to and well up the slope
beyond the Canadian River. It
is surely more abundant and larger
than it was 7 years ago when I was
over the ground last. Even the little
bushes 2 feet high are loaded with
conspicuous red bean pods.

The wide red sand bed of the Canadian
river & the scattered grove of old
gnarled cottonwoods along its banks
form a strong contrast to the
eroded, badland banks & buttes
along the sides of the valley.
This valley is still inhabited
by cattle mainly.

On the high prairie north of
the river valley farms are increasing
in number but grazing is still
the main industry. Fields of
milo maize & kaffir corn at the
scattered ranches are doing well
this year and some fields of corn
are seen.

Calamagritas are abundant
in flocks of 20 to 100 over this
plain to Salhart & in the night
we heard screeches over the town of
Salhart.

Aug. 16

Left Salhart at 2 A.M. and
woke up at Teneueri, Lots of rain
and vegetation thriving.

Reached Santa Rosa about 8 & followed
slowly up west slope of Pecos valley
to top of open plain. Scrubby
mesquite clings to south slopes
all the way up this slope but was not
seen beyond.

The top of this Pastura plain
is almost as level as the Etched
Plains but is evenly carpeted
with grass. *Gutierrezia* & other plants
take most of the ground.

The Pintado and Leoneita mesas
to the north are covered with juniper
& nut pine but the grass shows in
taller timber until yellow pines are
seen over the top and north slopes
of the buttes N. west of Duran.

It is then common along the top
& north slope of a long ridge S.E. of
the R.R. before we reach Torrence &
on buttes S.E. & S.W. of Torrence &
on the Sierra Gallinas to the west.
Nut pine & juniper cover the
warm slopes & surround the

bases of the buttes & ridges.
A dwarf live oak 2 feet high
forms thickets near Durango
and *Rhus trilobata* is common.

The surface rock is generally
limestone and numerous large sink
holes occur from Tioneita to Flaco.
There should be extensive caves.

Cattle, horses & lots of sheep
& a few goats were seen.

At Torrance we change to
the Santa Fe Central & turn north
past the Gallinas Mts., a high
timber covered range with lots
of tall timber, yellow pine &
probably other trees. Then
the Mesa Juvenave follows along
our left and on its highest North
slope are tall trees, apparently
yellow pine but rather distant.

The Animas & Pedernal Hills
mapped is over 1000 feet high
on the contour map & as an
important range on the Land Office
map do not exist. In their
place is a level plain, sloping
down to the Salt Basin.

The Salt Basin is a great
alkaline valley bounded on the west
by the Mangano Mts., high and heavily
forested range. Numerous snow
white salt basins were seen
and much of the gravel was white
with alkali. *Atriplex canescens*
is abundant over the valley, also
Gutierrezia, *Helianthella* salt grass.

At Willard the new line of the
Santa Fe crosses and runs west
between the Mangano Mts. & Mesa Juvenave.

At Estancia we stopped for dinner
& got a poor lay-out at a good price.
Grass is poor, cattle are scarce
and a few poor ranches have little
growing or other visible property.
Some sheep & few goats were seen.
New ranches are being started & people
seem to have faith in farming here
by dry farming methods. Much of the
soil is firm & rich and dry farming
may succeed. The valley is level &
very extensive.

At Moriarity the branch road
runs west to Albuquerque.
Open valley continues.

On the west the sandia and
Luzon Wts. and a bunch north of
the Luzons show tall timber &
their lower slopes which are
covered with nut pine & juniper.

At the north end of the valley
Opuntia arborescens is abundant
but juniper & nut pine follow
the rim over which we pass
to descend the slope to
Canonita Valley, which again
is open. Crossed the Santa Fe
R.R. at Kennedy & thence up
through juniper & open valleys
to Santa Fe.

Aug.

Aug. 17. Left Santa Fe at 11 AM &
reached Española at noon or a
little after. The valley is in
fine condition, but with good crops.
But there has been no rain for about
6 weeks. The sand is dry & blowing.

Aug. 18. Busy getting outfit in shape
to start, getting supplies etc.

Aug. 19. Could have started today
but as it was Sunday decided
to wait till morning & finish up our
reports and letters.

Canadian Plants

Santa Clara Cr. in James Mts.

<i>Picea pungens</i> - 18 mi. -	8000 ^{N.E.}
<i>Picea engelmanni</i>	8500 ^{N.E.}
<i>Abies concolor</i> - 18 mi. -	8000 N.E. -
" <i>arizonica</i> 22 mi. -	9000 N.E.
? <i>Pseudotsuga</i> - 18 mi. -	8000 N.E. - 1000
<i>Populus tremuloides</i> - 18 " -	8000 N.E. - 1000
<i>Acer glabrum</i> - 18 mi. -	8000 N.E. -
<i>Alnus</i> - 10 mi. -	7000 - 8200
<i>Betula occidentalis</i> - 10 mi. -	7000 - 8200
<i>Sambucus</i> 19 mi.	8500
<i>Amelanchier canadensis</i> - 18 mi.	8000 N.E. 8600
<i>Ribes d. irriguum</i> 18 mi.	8000 - 9000
<i>Oxalis violacea</i> 19 mi.	8200 N.E. -
<i>Vida carolinensis</i> 18 mi.	8000 - 9000
<i>Ribes (acutol)</i>	9000 -
<i>Ribes oxycanthoides</i>	9000.
<i>Potentilla fruticosa</i>	8500 -
<i>Veratrum</i>	

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Transition Plants

(distances per Española)
Santa Clara Canyon, James Mts.

- Pinus ponderosa* - 4500 N.E. to 10000 S.W. 10 mi. to 18 mi. to 10000
- ? *Pseudotsuga* - 8000 N.E. to 9 18 mi. to 10000
- ? *Pinus flexilis* - 8500 S.W. to 10000
- Populus angustifolia* - 10 mi. to 19 - 6500 - 8100
- ? *Betula occidentalis* 10 mi. to 20. 6500 - 8100
- ? *Alnus* " " 23 " - 9000
- Quercus gambeli* - " " " 4500 - 9000 S.W.
- Pseudocedrus monspiciensis* - 15 mi. to 20. 7000 to 9000.
- Prunus-cholacherry* - 8000 - 9000 - 18 mi. to 20.
- Cornus aspreifolia* - 15 to 20, 7000 to 8500.
- ~~*Coreocarpus*~~
- ? *Ribes* (as Hondo) 7 - 19
- Holodiscus* - 18 to 20 - 8000 to 9000
- Berberis "spatulata"* - 12 mi. to 19 - 7000 - 8000
- Salix cordata* - 12 mi. - 6500 -
- Gilia aggregata* - 12 mi. to 19 - 7000 - 8500
- Pentstemon* - " " " " "
- Solanum tuberosum* - 18 8000
- Hops* - 18 8000

Upper Sonoran Plants.

Escondido up Santa Clara Canyon.

Populus fremontii - along Rio Grande V.

Salix nigra? - " " " + 12 mi. up S.C.

Rhus trilobata - Throughout upper Sonoran

Fallugia purpurea - " " "

Pinus edulis - Foothills to 8500 S.W. - 12 mi. up ^{in bottom} Canyon

Juniperus occidentalis - " " " "

" *scopularum* - " " " "

Amaricus (No. 6000) 12 mi. to 8500 S.W. 18 mi.

" *gambelii* - 12 mi. to 7000 SW

Cercocarpus parvifolia - " few at 7 + 12 mi.

Ribes cereum - 7 mi. to 8000 + S.W.

Ribes (same as *antard*) 7 mi. to 18 mi. in bottom

Philadelphus microphylla - at 8000 S.W.

Opuntia arborescens - Rio Grande to 8000 + S.W. at 18 mi.

Opuntia (big) - Valley

" (small) - " to 8000 SW - 18 mi.

Yucca glauca - Valley to 7000 + - 15 mi.

Bigelovia ^{bluecata} - 7000 - 8000 S.W. - 15-18.

" green - Valley up 7 mi. +

" gray - " " +

Bigelovia canescens - Valley up 18 mi. 8000 ft +

Croton (No. 1000) " up 18 mi. in bottom S. slopes.

" " " " "

Chama (1000) " " " " "

2. Upper Sonoran Plants

Devils horns - Española, com.

Datura (big) " "

Cercocarpus parvifolia - at 17 mi.

became common near the same

Aug. 20 Loaded up and started
up the Santa Clara canyon,
but found the roads rather heavy
and sandy in places. One of
the team horses balked & we
made slow progress. Came
about 15 miles and camped
under beautiful yellow pines
some 4 miles above where the
first were seen on the cold slopes
and in the creek bottoms.

At Escondido, the country is all
upper Sonoran with *Populus fremontii*
Salix nigra along the streams, *Bigelovia*
and *Opuntia arborescens* over the valley
and junipers & nut pines on the ridges.
Up the Santa Clara Canyon about 5 miles
we begin to strike a few alders, birches,
and boxelders & *Salix cordata*, while
the sides slopes are mainly clothed with
nut pine, & *Juniperus monosperma* & a
few *J. scopulorum*. About 17 miles
up the canyon the first yellow pines
were seen in a good stand along
the bottom of the valley & soon a
few on N. slopes. *Quercus gambelii*
became common near the same

place where the pines began & a blue
live oak (Q.) also becomes
common but keeps on hot slopes
with nutpines & junipers.

Camped about 5 P.M. under beautiful
tall pines close to the creek. Hopped
the horses and turned them out on
short but good grama grass.

~~Shot 2 Eutamias & a hamster~~

Aug. 21. Found lots of birds in the
canyon and shot 2 Eutamias & a Sceloporus,
saw Thompson hills, & woodrat nests
& heard a Citellus grammurus.

Continued up the canyon about
2 miles & the team horse balked &
wouldn't start again, so we camped
& sent the team back for another
horse. Have a beautiful camp ground
on a high bank of the creek under
yellow pines & Populus angustifolia. Open
plate have good grass for the horses &
upper Sevieran south slopes come down
on one side while Transition timber covers
the bottom of the narrow valley & the steep
slope south of it.

The creek is clear & cold & rapid
& usually too wide to be jumped across.

Set traps near camp.

Found plenty of signs of Sciurus aberti
but saw none of the squirrels.

Rained hard in afternoon.

Aug. 22 - Caught only 2 *Neotomas*
Saw lots of birds. Rode a mile or two
up canyon to where *Pseudotsuga*, *Abies*
& *Picea* begin on cold slope.
Rained in night and every little
while all day.

Man returned with a new horse dent
roon, but decided not to move camp
today.

Aug. 23, Moved camp about 2 miles
up canyon when the team balked
again. Tried to back wagon down
hill & swashed a wheel, so we
camped & sent man back to
get wheel fixed & get a new horse.
We are here a mile below where
Santa Clara Canyon narrows up
and just at the extreme lower
point of Canadian zone on
the cold N.E. slope, *Picea*,
Abies, *Pseudotsuga* & *Acer glabrum*
& aspens begin just across
the canyon.

Found a bee tree, lots of
bear signs, saw deer tracks
Set gopher traps in the patches
of wild Potatoes that grow

in abundance on the little rich
soiled flats along the creek,
and evidently served as indian
gardens in prehistoric times.

The potato vines stand 6 inches to a
foot high - have white flowers.
Grow largest in mellow black
soiled places & have new potatoes
as large as sparrows eggs.

At the base of each vine is a
little old ^{grown} potato from which the
plant started. The new tubers are
full grown, pure white, and covered
with brown specks. They have several
eyes but one plant only grows from
a tuber. When boiled they have a
real potato taste but are rather
solid.

Thomomys fulvus are numerous
& one caught in the patch of
flowers, leaves & the white tuber stems
in its pockets.

Aug. 24. John did not come
back but we leave camp and
go where we please. Went up
the canyon 3 or 4 miles through
the narrow part & found it beautiful,
Cold, narrow, & full of Canadian
gum trees. The creek roars
& tumbles down it. The road
is stony but not very bad.
The sides of the canyon are steep
and on the north cliffy, one to two
thousand feet high, back to the
main peaks.

Aug. 25. John came back in afternoon with a new horse & the wheel fixed. I have a good line of traps out & so decided not to move camp at once.

In evening went over and cut into beehives, but the bees were cross & stung us so we gave it up till morning.

Found an old rock house on sunny side of canyon near camp, evidently prehistoric, but used lately to camp in. The ruins of an old front wall still show, but now only the open cave part is used.

Aug. 26. Took a saddle horse & rode up canyon about 10 miles nearly to the divide and half a mile beyond the last water.

Found bigger mountains than I expected, good camp spots and lots of country we want to work, extensive rock slides on cold slopes that are bare & suggest Hudsonian & almost a timberline. Passed many ranches that are abandoned & fences thrown open & are probably on Indian land.

Got good notes on range of trees & plants & some on birds & mammals.

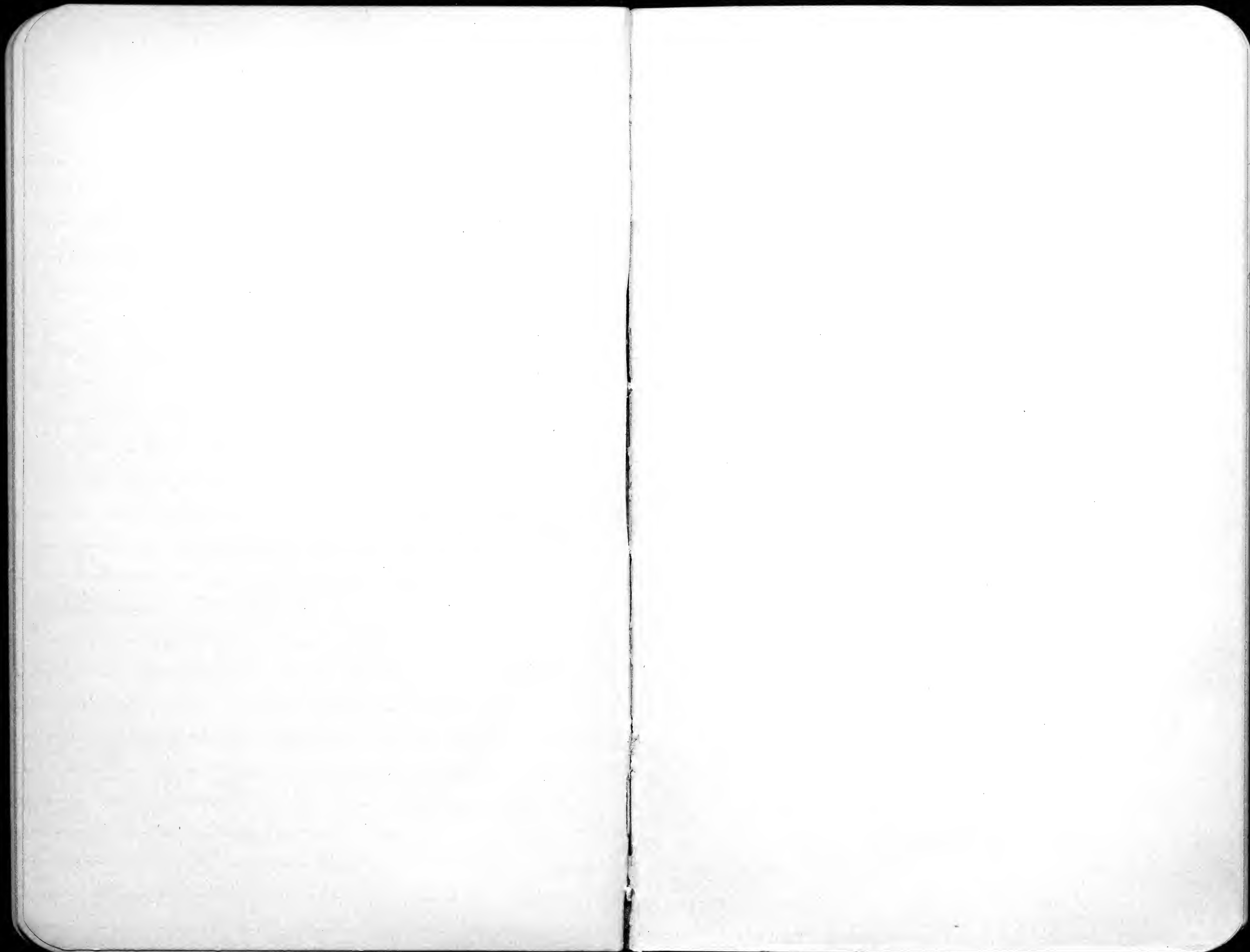
Returned to camp at 2 P.M. & made up skins & filled out plant lists & wrote up notes for rest of day. Didn't get time for any letters.

Took honey out of bee tree before daylight, got stung a few times through gloves. Got all the honey we wanted, about a quart, & left the rest for bees.

Aug. 27. Moved camp about 6 or 7 miles up the canyon above the narrow part & camped in old field that has been thrown open at about 8500 feet. Yellow pines and Transition zone species continue on hot slopes, but the valley is mainly Canadian, aspens & spruces. The canyon is rough but not very steep & I hiked up this far. Divided the load & sent John back after the rest in afternoon.

Aug. 28 - Had breakfast by 6 & started up the peak south of camp with a bag of traps. About 500 feet above camp struck great fields of slick rock of broken lava extending nearly to the top of the peak which is wrapped as 10400 feet. The top of the rounded peak is covered with timber and the south slope is open grassy pasture.

Canadian zone covers the top & north slope of the peak except for a trace of Hudsonian. *Saxifraga bronchialis* is the only real Hudsonian plant seen but the aspens disappear & the upper 200 feet of N.E. slope is somewhat



Dwarfed *Picea engelmanni* & *Abies arizonia*,
& might be called Hudsonian. Aspens &
even *Picea pungens* reach the top on
the southern brow.

The view from the peak showed
the Rio Grande Valley, Santa Fe, & almost
to Albuquerque, but nothing west of the
range. North of the Santa Clara
a still higher peak rises with open
grassy slopes on the south all timber
along the crest.

Found *Arctomys* common in
the rock slides, but no signs of
Arctomys. Saw several deer tracks
and one fawn track. Chipmunks go
nearly to the top & *Thomomys* quite to
the top on grassy slopes. Pine squirrels
are very numerous & busy & noisy,
cones are rattling down all through
the woods.

Found no water above lower edge
of rock slides and birds in series.

Aug. 29, Went to traps & got only a *Sorex* of importance. *Microtus mordax*, *Eutamias* & *Peromyscus rufinus* filled the rest. Found fresh bear bed and signs in the next gulch below camp.

Aug. 30, Worked all day on *Eximius* acct.

Aug. 31, Went to Esparola to swear to account & get supplies. Started at 6 A.M. & got back about 8 P.M.

Sept. 1, Brought traps down into woods for *Eximius*. Shot birds & made up specimens. Rained most of day.

Sept. 2. Caught *Eximius*, *Microtus*, *Sorex*, *Peromyscus*, *Thomomys*, 2 species of *Eutamias*, *Callospermophilus* & Pine squirrel.

Sept. 3, Caught 2 more *Eximius* but both were young with broken skulls. Intended to move camp in morning but the horses hid in a brushy gulch & we did not find them till 1 P.M. Then moved 3 miles up the cañon to last water & camped at last trace of yellow pine & transition.

Sept 4-

Climbed from camp at 9000
feet to top of peak N.E. of camp about
11000. This we call Santa Clara Peak
as it is evidently the sun mountain
of the Santa Clara Indians and is
the highest peak in the Jemez Range next
to Cibola Peak which is nearly equal in
height. Found no water on the mountain
above the head of Santa Clara Creek, but
its south & west exposures are largely
grassy slopes covered with tall,
ungrazed grasses full of seeds.
The first 1000 feet of my climb was
through beautiful woods of spruce & fir
& aspens, then over the grassy slopes
to the top. Patches of *Picea pungens*
are scattered over the slope and on
the N.E. side come up to the summit,
where they are much dwarfed. Fire
has swept most of the timber from the
mountain and probably the balsams could
not stand burning as the pungens did.
Found bluegrass on top & anthers,
Oenothera were abundant in rock
slides

~~Sept 15~~ ^C Bode camp & ~~cross~~ followed up Santa Clara Canyon 3 or 4 miles to its head and over a low divide and down La Jara Creek to its junction with the San Antonio. Turned up half a mile into ^{Valle} Santa Rosa and camped by a big spring under the first spruces. They are at 8500 feet by the contour map. Came about 10 miles. Camped at noon.

The head of Santa Clara valley is a beautiful valley, narrow, grassy, without water, between a wall of spruce & fir on the south & scattered strips of aspens on the north.

La Jara Creek begins a mile below the summit & runs down a steep & crooked gulch for a few miles, then widens into a wider, grassy & meadow valley & then into the big open grass Valle Santa Rosa just before joining the larger San Antonio.

The Valle Santa Rosa is a park like basin about 2 by 4 miles in extent, well watered and covered with luxuriant grass. A few cattle & sheep do not keep the grass eaten down noticeably & it stands one to 2 feet high, of the best varieties.

no one lives in the valley, as it is on the Boea Grant & is too high for farming.

Yellow pines & other transition zone plants grow on hot slopes only.

The cold slopes are covered with spruce & aspens & the bottom of the valley is marked by Canadian zone plants, especially in the washes, while most of the grasses are such as go up to 10000 feet. See note book for list of plants. Frosty mornings at camp would indicate a Canadian zone climate.

Numerous old craters nearly surround the valley, some old & flat & others steep kind of cones.

The ridges are mainly lava streams, old & broken up & generally overgrown.

A few trout in the streams do not bite readily but John caught a lot of little fish that are like chubs & very good.

Set microtus traps & 2 for Coyotes & some for *Canis*.

Cynomys gunnisoni are numerous but keep mainly on the hot slopes.

Sep. 6 Took saddle horses & went
about 10 miles south to top of Pelado Peak
& back, crossing an arm of San Antonio
Valley & returning through Valle Grande.
This is a superb park like valley
4 x 5 miles in extent, surrounded by
high mountains & craters, well watered
by numerous streams & springs.
Covered with luxuriant grass &
not over stocked. It also seems
to be mainly Canadian zone with a
rim of Yucatan on the hot slopes.
No one lives in it.

Pelado Mountain is a great
dome shaped crater 11200 feet high
mainly covered with Canadian
zone forest of Spruces, aspens
& firs. We found several streams
on its sides, one starting at about
10500 feet. There are numerous grassy
parks throughout the forest and the
upper slopes of the mountain are
well mixed with strips of timber
& parks of luxuriant grass.
Rock slides of broken lava cover
extensive areas high up & the top
is stony but covered with grass & trees.

There is no timberline & the *Picea pungens* & *Abies arizonica* are not dwarfed at the top as the *Piceas* are on Santa Clara Peak, which by the level seems to be 200 feet higher than Pelado. See list of plants on top in note book.

Ocotilla were common in the rocks & we saw lots of deer tracks & at about 11000 feet 4 old buck blacktails, all of a size, very large with full grown horns in the velvet. They were in the red coat, & as they stood 100 yds distant looking at us they seemed like elk & I looked carefully at the horns to make sure that they were not. The glass showed the velvet on the horns.

Counted 10 old cock blue grouse & saw several fresh turkey tracks. Saw a panther track & some fresh bear tracks - stones turned over.

Shot a *Lepus pinetis* at 10000 feet & saw signs evidently of beards higher up. On the way have killed a large male porcupine & got back to camp after dark.

Sept. 7 - Made up skins most of day, collected a few plants & wrote up notes in evening. Had prairie dog & rabbit for dinner & fried owl (Bubo) & bacon for supper & found both pretty good, the prairie dog better than the owl & the rabbit better than the P.D.

Sept. 8, Broke camp & followed down through the beautiful, grassy, park like Valle San Antonio, then down the narrow James Canyon to San Antonio Springs & below to the mouth of the creek from Sulphur Springs and camped in yellow pines at 7700 feet. The canyon is rough and steep and picturesque and is filled with Canadian zone spruces & firs down to about 8000 feet, to below San Antonio Springs. Then transition yellow pines begin and fill it as it opens out more & faces south. It is full of fine timber all the way and superb yellow pine below.

Road pretty rough & steep

Sept. 9 Said to be Sunday, when we
inquired at James Springs.

Continued down the canyon which
grows steeper and narrower about
4 miles to the saw mill at junction
of South Fork with the main James.
Here on hot, steep, barren S.W. slope
the junipers & nut pines & blue oak
begin and mark the extreme upper
point of Upper Sonoran. Transition
continues on cold slopes and top
of mesa walls to James Hot Springs.
Then the valley opens out more &
is all Upper Sonoran, with 3 species
of juniper, nut pine, blue oak, & the
full set of Sonoran plants. Little
farms occur at intervals &
small fields of corn & alfalfa &
potatoes, & melons & squashes &
such fruits as peaches, pears,
nectarines, apples, & grapes are
common & good.

Camped among junipers about 5
miles above James Pueblo

Sept. 10. Caught *Dryobates pallescens*,
Peromyscus truei, *Perognathus*
and *Meotona albigula* & *fallax*. Shot
Ammodramophilus lucurus and
Eutamias quadricinctatus & saw *Citellus*
gramurus, *Lepus arizonae* & signs of
Erethizon. Packed up and continued
down valley about 4 miles to Jesus Pueblo
and then on to San Ysidro, 4 miles
farther & camped for the rest of the
day to make up specimens.

Found ruins of an old pueblo on a
sandstone mesa a mile or two above
Jesus. It had afforded a very strong
position but is now a heap of rubbish.

Fields of corn & melons, squashes
and peppers dot the valley.

The Jesus Pueblo is mainly one story
adobe houses in irregular grouping.

There is a poor store, and a few
new buildings seem to be for a school
or some official purpose. The pueblo
is rather common & uninteresting.

Below the creek widens out in
a great sand flat with a shallow
stream of water.

Sept. 11 - Left San Ysidro and turned west up the sandy valley of the Salado. Passed many mineral and soda springs, some of sparkling soda water, others of sulphur, iron, mud or other minerals. Some have built up fine cones of calcareous incrustations and a wide strip of country seems to be largely spring formations.

Left the Salado & followed up a long, dry, sandy draw till noon, then crossed a ridge and beyond found a great tank of fairly good water "Chuca tank" about 12 miles from Cobezon. Here we lunched & then decided to stay all night as there was no more water until we should reach Cobezon and we had made a hard pull through sand and up hill over bad roads.

Found *Amnospermophilus* common, also *Eutamias* & *Citellus grammurus* and mounds of *Dipodomys spectabilis*. Saw a few *Lepus arizonae*, several flocks of blue quail & doves were numerous in patches of *Chenopodium* & *Croton*.

Sept. 12. Continued over dry mesa
to Cabezón, a desolate little adobe
town on the Puero, where we lunch
then turned south about 4 miles and
camped by a good rain tank
at the south base of Cabezón Peak.

This peak is a volcanic neck like
the Devil's tower only larger and higher
but with less perfect basaltic form
columns. It is one of some 20
such necks along the Puero valley here
most of which are smaller but range
from 400 to 1000 feet high and all
extremely interesting. They are on
a level with the Mesa Prieta on the east
& the Sierra Chivata on the west & have
been left standing in the valley
eroded out by the Puero. The
edges or one side of others are
seen till half buried in the mesas.

Grass is good & water is
scarce. The pools here & there in
the bed of the Puero are very old
Mexican ranches along the valley are
poor, but little crops of corn are
raised & a few vegetables.

Sept. 13 - Followed down the Puerco
^{39.4 miles}
and crossed at ~~San~~ Salazar,
then struck S.W. up a gradual slope
and over a ridge or point of the
Mesa of the Sierra Chivita and down
to a Juan Tafoya creek a mile below
the little town of the same name.
Here we camped under a bunch
of *Quercus gambeli*, just at the
edge of Upper Sonoran & Transition
zones, but among mainly Sonoran
species.

Sept. 14, Rained a little in the night
and kept showering all the forenoon.
but we packed up and went to
Juan Tafoya & then on toward
Laguna, through a gap in the
mesa. Lunched by a rain tank
out on open plains, then by
following the directions of a man
who did know the roads took
the wrong one and missed Pajuta
& Cibolletita and struck the
creek lower down, and camped
on Cibolletita Creek. Came close
to Mesa Giganta, which is all Upper Sonoran.

Sept. 15 - Reached Laguna before noon
and camped at edge of town to
read mail and answer letters
which took the rest of day.

Sept. 16, Packed specimens all of forenoon
& in P.M. went west a couple of
miles up the valley and found a
good place to camp on a clean
salty grass meadow by an
alkaline spring & flat. Brought
good water from P.R. tank in town.
Water horses at ditch halfway
to river.

Sept. 17 & 18 & 19 Remained at this camp
writing reports, trapping, and
trying to catch up in back
notes & work.

Sept. 20 Loaded up with supplies
& left Laguna at noon. Followed
up valley to Cubero and then up to
base of San Matias 4 miles north
of Cubero & camped where the
Creek comes out of canyon. Fine
water & grass & plenty of wood.

Sept. 21.

Took a saddle horse and started at 6:30 up the canyon of the San Marcos. Followed old road about 6 miles up beautiful canyon and good trail about 4 miles farther to heart of old crater, where I left my horse and went to the top of the highest peak, about 1000 or 1500 feet on foot. The slope was gradual & I could have ridden to the top but for hitting my horse rest.

From the top of the peak I had a superb view of the country all around. The whole west slope of the James Mts., & Gallinas north of them of the Chaco Mesa & country north of it to the snow covered range of S. western Colorado, the long black range to the N.W. on the Navajo Res., the whole great mass of black forested Zuni Mts., the Black range & Mogollons to the S.W., the San Juan & Magdalena to the S. & the Rio Grande Valley & Mts. east of it. Looking down on the mesas around the San Marcos & on the Sierra Chivatos I could with the glass distinguish yellow pines

+ Junipers and make many corrections
and additions to my zone map &
color in the still newer Canadian
zone area of the San Matas with
considerable accuracy. This was
the easier as the aspens now
turned a golden yellow & their
limits coincided with that of the
spruces. The zone map of this region
I now consider fairly accurate.

The San Matas are one
enormous old crater with the
rim complete 2 thirds of the way
around and enclosing ^{beautiful} secondary
cone of 1000 feet in height. The
rim of the old crater is probably
4 miles across, circular & of
nearly uniform height, the highest
peak reaching 11385 feet as shown
by the contour map. Both inner &
outer slopes are well sodded over
- covered with good timber or
grass. There is comparatively
little exposed rock until the lower
canyons & mesa cliffs are reached
some 4000 feet lower down, where
the lava sheets break off and show

the sandstone formation below.

The Sierra Chivatos are a great lava field just east of the San Matias & in part derived from them. Small craters over the surface of this plateau have also contributed to its formation. Its top is pale & yellow fine transition, heavily forested around the edges but largely open grassy plains in the central part where the lakes are.

The Central Canadian zone area of the Mts. comes down to about 9000 feet on S.W. slopes and to 8000 feet on N.E. slopes. It is mainly forested with a dense growth of *Picea pungens*, *Abies arizonica*, *Pseudotsuga*, and *Populus tremuloides* and has abundance of willows and alders along the streams & *Betula glaberrima* in the forest.

See notes book for other plants.

In places the forest has been burned & has come up to brush & aspens and considerable of the upper slopes are covered with fine grasses.

Transition zone covers the
Mesa tops and runs down in tongues
along cold slopes to 7000 feet.
It is mainly characterized by *Pinus*
ponderosa & *Quercus gambelii* ^{& *ponderosa*}, but
also by such plants as *Ceanothus*,
Berberis "spatulata", Chokeberries,
Amelanchier, *Gilia agnata*, *Pentstemon*
(scarlet), *Ribes* (Hoods), *Rosa*,
Juniper (4005), & others.

There is much valuable
timber timber in the yellow
pines & Douglas spruce, some of
which has been cut & more burnt.
The oaks are often large, $1\frac{1}{2}$ to 2
feet in diameter & 50 to 60 feet high.
Around the north base of the mts.
a few farms were seen among
the yellow pines but generally
they are uninhabited.

Upper Sonoran zone covers
the surrounding valleys & runs
up on the foot hills and hot slopes
to a height of sometimes 8000 feet
on steep S.W. slopes, or about 7000
on cold slopes. Its trees
are *Pinus edulis*, *Juniperus*

monosperma + *paedunculata* - *Quercus*
grisea! Its bushes are *Rhus aromatica*,
Lalage paridoria, *Atriplex canescens*,
Sarcobatus, *Euratia lanata*, *Bigelovia*
futuriza, *Opuntia arborescens*, *O.*
clavatum + *englemanni* "ninos",

Many Mexican ranches are located
in the upper Sonoran canyons and
gulches around the edges of the
mesas where some water can be
had for irrigation or even for stock
+ house use.

Corn, beans, peppers, + melons are
the principal crops + a little fruit is
raised.

Sept. 22 Remained all day at camp writing reports for San Matias, making a few specimens etc.

Sept. 23, Broke camp and came down through Cubera, where we mailed letters & reports and a package, then crossed the R.R. at Cubera station and struck the wagon road from Laguna to Acoma. Followed up a wide flat valley past the Enchanted mesa to Acoma. Went past about 3 miles & then found there was no water, so turned back & camped on the flat just east of the pueblo cliff by the reservoir where the cattle & horses & burros drink. A spring at one end gave us good water but the reservoir water was green & old. The reservoir is deep, with an island in the middle to keep stock from crossing.



The island is covered with tall weeds & grass & trees which shade the water & keep it cool.

The Acoma valley is extensive, very flat, with fertile soil - abundance of grass, grama on the

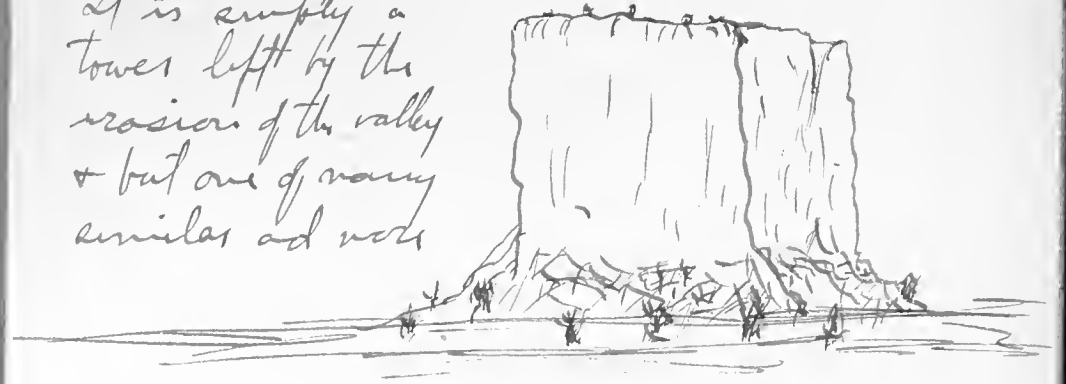
side slopes and saccatons over the
flats in great abundance for winter
feed. The more moist areas are
covered with fine corn & squashes
& melons. And this year the crops
have been unusually good without
irrigation. Fields are scattered here
& there where ever a patch of moist ground
is available, are unfenced & of irregular
form. The corn is generally sowed
one way and worked some with the large
hoes which they use.

Junipers & nut pines border the valleys
& over the ridges & mesas. The valley
is hot Upper Sonoran with firm soil
and some sub-irrigation. The dry
farming methods would apply here to
great advantage. But the Indians
seem to raise enough in their primitive
way & are content.

As we passed close to the base of the
Enchanted Mesa it towered some 400 or 500
feet above the plain in a superb yellow
sandstone butt with sheer walls on
all sides, save two places where water
has cut out gashes & made it
possible to get up by ladders & ropes

A few small trees junipers or nut pines grow on top with other vegetation.

It is simply a tower left by the erosion of the valley & but one of many similar and more

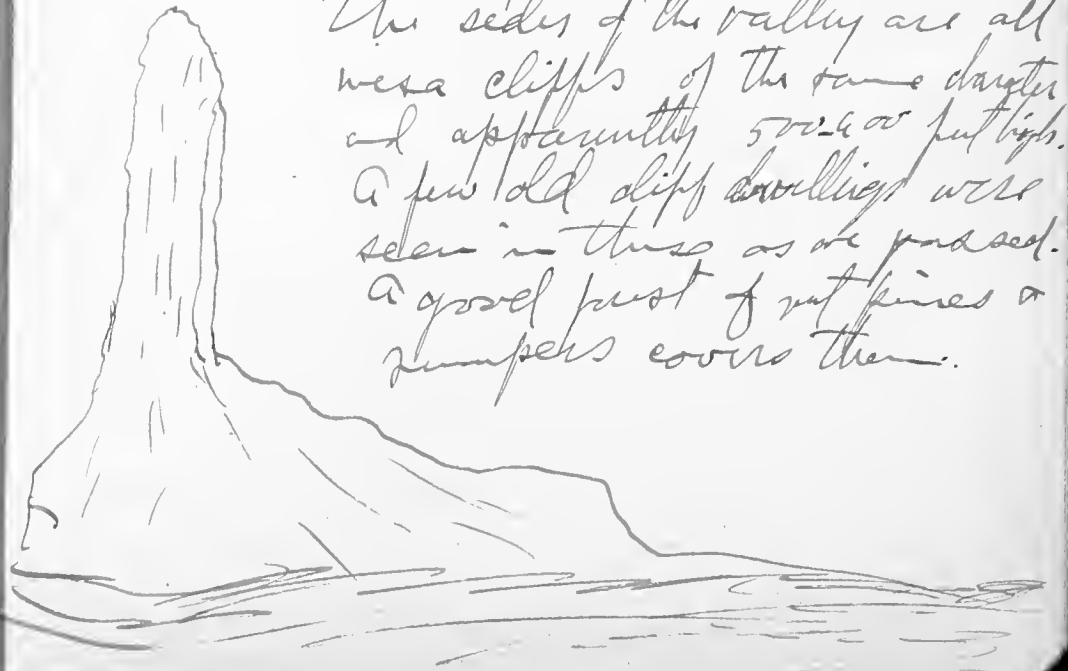


elaborate mesas. Another west of the Pueblo is very similar & probably not climbable - and just beyond it is a giant Chaparral Mule of the same structure, 200 feet high & slender.

The sides of the valley are all mesa cliffs of the same character and apparently 500-600 feet high.

A few old cliff dwellings were seen in these as we passed.

A gravel forest of nut pines or junipers covers them.



Sept. 24. On our way past the pueblo

of Acoma we stopped & climbed up the stairway on the south wall up the 200 foot cliff (by the mermaid) to the pueblo perched on top. A less steep stone stairway & trail leads up the other side ~~and~~ where the burros & horses come up, and apparently these are the only ways to this most inaccessible of the Pueblos.

The view is superb, over valley & mesas & mountains.

Three or four rock tanks still held rain water, tho' old & dirty.

The pueblo is extremely picturesque & interesting, tho' only about 50 of the people are there during summer.

The rest are out on farms or out at Acoma, but they return here for winter, where our friend Charles Dixon said - "It is so fresh and clean. No smells, no dirt, and such fresh air". The people are evidently fond of this old pueblo, but it is only a matter of time till they will come down & leave it.

On the side of the cliff near the

Pueblo we saw Eutamias probably darwini, as others were seen & killed just far beyond, and at the base of the cliff I killed a Crotalus confluentis.

Yesterday I also collected a Sceloporus & a little Uta in the valley near the Enchanted Mesa.

Continuing up the valley, on a branch of it to the south, we entered a wide canyon & a few miles up this turned up a fiendish road, steep and stony & long to the mesa top some 600 feet above the bottom.

Had to unload & pack most of the baggage up on the horses & then had difficulty in getting the wagon up. Camped on the top of mesa as soon as we reached the top and were thankful for a hard shower that supplied our needs and prevented our making a very dry camp.

The mesa top is beautiful juniper country with abundance of ~~grass~~ grass. The view over ~~Alamosa~~ to the San Mateo Crater is superb.



Broom Mtn. Camp.

Sept. 25-

Continued S.W. about 10 miles over open grassy valleys between junipers & nut pine ridges, past ^{our} Mexican ranch and camped by an arroyo. There is nothing to locate the camp by except Broom Mtn., a flat topped mesa 3 or 4 miles to the S.E. but we are some 15 miles S.W. of Azusa.

The valley we are now in seems to be one of the head waters of the arroyo called on the Land Office map Rio Colorado. A deep dry gulch cuts through the valley but we found water in old channel holes at one side, muddy, but good rainwater.

The valley is wide and covered with grass & weeds, lots of *Helianthus* & *Atriplex*, but is not much alkaline.

The low side ridges are covered with nut pines & junipers & a little blue oak & occasionally a few *Quercus gambelii*. In several places we passed strips of yellow pines on cold slopes and on the higher ridges to the west we see ranks of tall yellow pines. We are close to the upper edge of Upper Sonoran, but most of the plants, I think, belong to the zone.

Sept. 26. It rained hard in night
and as we are in a gumbo valley the
roads are bad, so remained in
camp, setting wolf & other traps.
Caught *Peromyscus*, *Cynomys*, *Thomomys*,
but the rain spoiled my night's trapping.
Found wolf signs made up of cattle
rins in Neotoma house and heard
Coyotes howl all around. Saw
Lepus texensis & *arizonae* & heard
Eutamias. Shot a solitary sandpiper.

Sept. 27. Caught *Neotoma* &
Cynomys & *Thomomys* but
no *Dipodomys*, *Perodipus* or *Perognathus*,
all of which are
common. Shot a *Bubo* in
night. Made up skins and did not
move camp till after noon. Then
followed up the valley some 6 or 8 miles
with very gentle slope to a ranch
and about 4 miles beyond to a reservoir
was the head of this draw and camped.
Anemometer on starting read 7200, at night
at reservoir camp 7700. Followed open
valley all the way with junipers & but pine

larches and yellow pines on top of the ridges and on cold slopes. Fine grass all along. Beautiful country & very few people in it. A few old reservoirs have filled up and the old houses are generally abandoned. A few sheep and cattle range over the country but not enough to affect the grass.

Sept. 28. Leaving the reservoir camp we turned north over low nut pine ridges with a few pines *ponderosa* scattered along and on cold slopes nearly solid *ponderosa*. Lots of blue *Juniperus scopulorum* is here scattered in with the *monosperma*. ^{above} Came down into deep gulch to Sibillo Spring in a gulch valley. Then down this valley N.W. for about 6 or 8 miles then south along the edge of the lava beds to Punta Malpais, a Mexican ranch out on the edge of the great plain bordering the lava flow. Reached the ranch after dark & camped as we found no water after leaving the Sibillo Cr. to the ranch windmill.

Sept. 29.

Started from Punta Malpais
S.W. across a big treeless basin of
old lava beds, full of sinks and
dry lobes and a few ponds of water.
This seems to have been an old lake
bed 25 or 30 miles across, and lowest
at the Punta Malpais at 6900 feet,
with juniper & nut pine timber
encircling it on slopes down to
7200 feet. Below what seems to be
a pretty uniform level there is no
timber, but the broken malpais is well
covered & bedded in sand & gravel
except along the tops of rocky ridges
that are bare & black. The whole great
basin plain is gray & brown
and dirty green from the various
desert plants & dry weeds. *Bigelovia*
~~is~~ a small gray species, *Gutierrezia*,
the brown *Eriogonum* & a gray and
dried up *Krinitzkia* give the general
tones to the landscape. The grama grass
is getting brown & patches of wildsunflowers
(*annuus* & *laevis*) are dark brown while
fields of *Helianthella* show light gray
from their dry stems. We saw
no permanent water or signs of habitation.

Rounded the end of the double cuestas peak just at sundown & crossing a low ridge at 7300 feet in the junipers, nutpines, & a few ponderosa, descended a long, gradual slope to an old well & cabin and camped long after dark. Found an old prospector, Dr. Young, camped there with his two burros and he showed us the old well where we got nearly a pail full of malodorous water full of stinky things & drank & got supper but had no water for the horses. Came about 25 miles out west of it over stony roads & at a slow rate.

Saw lots of prairie dogs and several coyotes and looked for antelope but saw none. The old prospector said he saw a bunch of 15 or 20 on his way across the basin. He also says there are 25 or 30 on the San Augustine plain, south of here. He showed us a fine skin of a silvertip he killed in the Satels a few weeks ago. It is in good fur.

Ameroid 7000 at camp.

Sept. 30.

As we could get no water for our horses we pulled out early and after following west down a dry arroyo on the road to the Salt Lakes for a mile or two we turned south over ridges on an old time road and in about 10 miles came to a big spring & camped for the night at the end of the day. This may be Lathrop spr. as given on the Land office map & may not.

Camp in morning 7000, down valley to 6900, then up over ridge at 7100 and camped at spring at 7200.

Followed open, dry valleys with good grass, *Triglochin*, *Yucca rigida*, *Helianthus* & *Helianthella*, *Lysium pallidum* & *Utriflex canescens*, and bordered by Nut pine & juniper ridges. Saw a few yellow pines on cold slope of one mesa ^{south of us} and others on distant peaks. No water & no one living in the country, tho the ruins of two large old pueblos were seen, one where we camped last night & one on the way.

Saw antelope tracks & lots of Coyote tracks

Oct. 1. Left the spring camp and in about 2 miles crossed a ridge & then went down hill to the bottom of a big valley running east & west & turned east 2 or 3 miles to Rita Quemado, P.O. ~~at~~ and store. Got supplies, sent out mail & then turned west up the valley 2 miles to the Largo Valley and followed up it due south about 5 miles & camped at a Mexican ranch & got good water from the well. The Largo is dry up this far but remaining farther above. Camped at the first good grove of cottonwoods, (*P. angustifolia*). Came about 20 miles all together.

The Rita Quemado and Largo valleys are continuous, broad, open plain like valleys. The Rita is alkaline & generally bare of grass, weedy & covered in part with *Shrebotes*, *Atriplex*, *Suaeda*, & various weeds. It seems to be overstocked as a winter range. There are scattered Mexican ranches along, mainly vacant. The American Valley Co. owns the valleys & whole region. There is a lake at the mouth of Largo

which seems to be the sink of the valley.
The Rito Cr. flows west a mile or two
from a spring, but soon dries
up & it is pretty alkaline to start
with. The Largo valley is sandy
and free from alkali & the water
of the Largo is fresh & pure.
The soil is rich & vegetation rank.
Grass is abundant, mainly grama.
The cottonwood groves along the river
channel are beautiful, of the graceful
angustifolia & now golden in full
autumn colors.

But pine & junipers cover the ridges
around the valleys and over rim to the
north. The whole country covered is
Upper Sonoran but a high peak &
ridge to the south are covered with
aspens high up on their cold slopes.

Oct. 2

Oct. 2. Caught only *Peromyscus sonoriensis*
+ *Neotoma albigula*, ~~the~~ *Perodipus* +
Perognathus + *Thomomys* were abundant
but refused to get in my traps.

Shot a coyote just as we started
on the road. *Cynomys*, *Lepus arizonae*
+ *texensis* are common, also badgers.

Followed up the Canyon Largo
about 5 miles and camped under
a grove of beautiful golden *Populus*
angustifolia beside a clear stream of
clear, pure water - The first good
water we have had since leaving the
San Mateo Mts. The valley here is
a quarter to half a mile wide, rich
and grown over in part by clumps
of *Rhus aromatica*, and very large
Begonia beside the scattered
groves of cottonwoods. Nut pine
ridges border the valley + 3 or 4
old pueblo ruins stand on the
low mesas at edge of valley.

They are mere heaps and rows and
squares of lava rocks now, with
numerous hollows - estufas or water
tanks. The ground is covered
with bits of highly decorated pottery

+ flint chips. The valley must have
been thickly settled & a delightful
region at one time, but probably
long before even the Spanish invasion.
The bits of pottery collected will
show something of the age & race.
Many holes have been dug into the
side of the pueblo hills and bones
and pottery unearthed but the
ruins have been but little disturbed.
There have been many isolated
houses on the ridges and points
bordering the valley, so a complete
view could be had at all times
of the whole country. The
outlook from these ancient
habitations must have been most
inspiring, of mountains, valley
expanse & dark slopes of *Trogon*
nut pines & junipers.

Oct 3

Rode about 5 miles east of camp and climbed the peak shown on the Land Office map as Pinion Mtn. It is some 10 miles south of Guenado and is the northernmost spur of the Gila River System of mts. It is important as the next step of Canadian zone south of the Zuni Mts.

The peaks are part of the rim of an old crater that had broken out on the south and sent out streams of lava south & west. The eastern peak is some 200 feet higher than the western and by my aneroid read 9750 feet. It is probably nearer 10000, as the barometer works too slowly at its upper limits. It is registered to 10000 only & on the San Mateos which are over 11380 it read only 10100. The mountain is all of lava resting on sandstone beds ^{often with} copper. It is steep for the upper 1500 feet and its north slope and part of the upper south slope are covered with *Adonis*, *Abies concolor*, *Pinus flexilis* & *douglas spruce*.

The lower slopes & north of the

South slope are yellow pine transition, with gambel oak & some *Pseudotsuga* mixed in. (See note book for lists of plants). On the north at least the lower ridges are covered with nut pine, & the 3 junipers - *monosperma*, *scopulorum* & *procumbens*.

There seems to be no water on the mountain except in foothill gulches a few springs and the large flowing pool at the east base. Its animal life is scanty - poor.

Chipmunks were heard low down, but none above the foothills & these were probably *doszalis*. Porcupine gnawing was seen on nut pines around the base & deer tracks were common in the lower gulches. *Lepus arizonae* & *texensis* were seen around the base & lots of *Neotoma* houses. Lynx tracks were common & also Coyote & signs evidently of great weasels were seen half way up. Gopher hills are common & doubtless of *fulvus*.

Bluegrass patches were found near the top on north slope.

Oct 4

Remained at camp making specimens & 2 days accumulation & setting traps & writing up notes. Saw 8 coyotes in a drove while out to traps Perodipus traps near camp in morning.

Oct. 5. Caught Perodipus & Perognathus, took up traps & started up Largo Canyon. About 5 miles above we turned west up a side gulch over a low divide ^{to the west} and up another open valley to the south. Followed some 6 or 8 miles up this to near its head and camped in a mountain valley encircled by lava rims at the head of the stream at 8000 feet. The mountains rise about 1000 feet higher on the ^{east} north and not quite so high on the west. This north slopes and gulches are Canadian zone, covered with Aspens, Abies concolor, Pseudotsuga & Pinus flexilis. The valley in which we are camped & greater part of the Mts. is Transition yellow pine & gambel's oak, while Puffer Sonoran nut pines & junipers come up on some of the hot slopes nearly to the divide.

The valley where we camped is a circular park one to 2 miles across, open & grassy in the middle, overtopped by open yellow pine woods. A good little stream rises in the middle of the valley & flows out to the north. From our camp on the west side of the valley a barren rim of aspens borders the opposite slope near the top. Cattle & horses graze over the valley but the grass is standing knee high & full of seeds as if untouched.

A fresh horse trail followed its road ahead & rode up through the valley and we camped early & set out a line of ~~fox~~ traps for wolves.

Oct. 6 & 7. No wolves came along so we remained & reset traps as fast as the horses & cattle tramped them out. Caught a weasels in one, the only thing that came along.

Oct. 8. Heard wolves howling in the night near camp & felt sure of one, but found they were too wary for my traps. They came to the scent of one trap but kept at a safe distance from it and went around another. It was a pair of old wolves with 2 young of the year & the old male had a huge track & evidently is a wise old leader, well up to trappers' tricks. I have little hopes of getting any out of this bunch at present.

A coyote followed the wolves & got into one of my traps.

Photographed him & made a specimen of him.

Oct. 9. Caught nothing. Broke camp and passing south through Jewett Gap followed down into big dry valley & struck the road from Santa Luna Valley and followed it east along the foothills of the so called Ocotillo range to Galles & Apache Springs, where we lunched & then continued east till we struck the Tularosa & Magdalena roads. Then south & reached Tularosa at dusk.

Came about 30 miles but over some rough lava ridges & had to move slowly. Found water only at the 2 springs & at a tank near Tulrosa. A big dry, nearly uninhabited country mainly Upper Sonoran except cold slopes which are all transitions.

Aneroid at camp read 8000, on divide in Jewett Gap 8100, in big valley 7650, at Galbo Spr 7700, on ridge 7800, at Tulrosa 6800.

Oct. 10. Followed down Tulrosa valley to Frisco, (6750 to 6000 feet) and returned 2 miles to camp on ridge.

The Tulrosa valley is full of farms and good flat land but farmed. It is mainly an Upper Sonoran valley but the cold slopes & flat bottom are transitions with yellow pine & *Populus angustifolia*.

Corn & alfalfa do well & we saw cabbages & turnips & beets & squashes, but the valley is said to be frosty so it is necessary to raise early corn. The corn is ripe but frost has killed the vegetation.

Oct. 11, Returned to Mr. Delgar's ranch.
at Joseph and camped in his
field on the old pueblo.

Met Mr. Shed & Mr. Andrews at
Mr. Delgar's & saw the three forest
rangers, Monday, Cassell & _____
who stay at the cabin just below.
Prepared for a trip up the mountain
tomorrow & went squirrel hunting.
got 2 gambeli out of a flock of a dozen.

Oct. 12 - Took saddle horse and went
up Eagle Peak in the Zuhroosa Mts.
Crossed Zuhroosa River 3 miles below
Delgar's, then followed up Largo Canyon
about 4 miles east to spring, then struck
across mesas & canyons south to
peak. Left horse in gulch at base
of mountain & followed up north slope
on foot reaching top at 3:38 P.M.

Aneroid at Delgar's read 6550, at
mouth of Largo 6450, at spring 6470, Left horse
at 8550, top of peak ~~to~~ reached 9650.
Eagle peak is a sharp point just beyond and
about 100 feet higher.

Mapped zones for the whole Zuhroosa
range & some of the surrounding country.

Returned to my horse at 6 p.m. & got about 5 miles out onto the ridges when it got too dark to travel & I camped under a juniper tree till morning. Had no water since leaving Largo Canyon in the morning & went to sleep pretty thirsty.

Found no water in the dirt. but they are covered with on the top & north slope with a heavy forest of *Abies concolor*, *Pseudotsuga* & aspens. On the south slope & north base with yellow pine and *Quercus gambelii* & *Pseudotsuga monensis* in open transition zone forest. The south slopes of lower ridges & mesas are all upper Sonoran, nut pine, *Juniperus monosperma* & *Pinus ponderosa* & *Quercus grisea*.

Saw one blue grouse & signs of others in spruces high up & lots of *Cyanocitta*, but most of the migrants are on the move or gone.

Saw 3 *Odocoileus hemionus* in Largo canyon, & 2 *O. conesi* at 8500 on the mountain at the first aspens. & lots of tracks of *conesi* above to peak.

Saw some bear sign & a big silver tip is said to live in the gulch on this slope. Saw one *Lepus pumilus* at 9000 feet & *Sciurus mogelloniensis* is common in Canadian zone. *S. aberti* is common in transition. *Eutamias quadrivittatus*? is common in Canadian & dorsalis in upper Sonoran zones & both occur in transition. *Citellus grammurus* is

common in Upper Sonora & still
active. *Callospermophilus lateralis* was
seen at 9000 feet in Canadian zone.
Thomomys folius goes to the top
and a large house of Neotoma crinita
was found in woods at about 9400 feet.
Prairie tracks are common along
the Colorado River & Lynx & Lynx are
common in the canyons. Coyotes
howl at night and are feeding on a dead
cow at the ranch. There are said to be
a few bobcats but not many. Mountain
lions are said to be common and a
good many are trapped. Black & brown
bear are also common.

Badgers & prairie dogs are common
in the valley.

Oct. 13. Left my dry camp early &
reached camp at 8 A.M. Packed
up & started at 2 P.M. down the
Colorado valley, past Tule &
Camped in canyon 5 miles below
at 5850 feet. Found numerous Mexican
ranches down the river to near the
beginning of canyon, there no more

Oct. 14. A cold night in camp followed by hot day. I borrowed over 2 pails of water brought from river to get breakfast with. While eating breakfast a fine mule deer buck came down and drank out of the river close in front of us. We thought in the dim light it was a doe until it climbed the hill opposite & got out of range.

The ~~Tate~~ San Francisco Canyon reaches about 15 miles to Kelley's ranch and is cut through lava flows most of the way with steep rough sides a few hundred to a thousand feet high. In one place I counted 22 flows, one above another. The bottom is sandy with flats and points and strips of good soil that carries various trees according to slope exposure. The bottom seems to be mainly transition zone with abundance of *Populus angustifolia*, boxelder, and some *Pinus ponderosa* & *Quercus gambelii*. Still the hot slopes and benches are intensely hot riparian Sonoran with nut pines, junipers, blue oak, & *Quercus* & cacti.

At Killeys ranch (5600 ft)
we began to strike Lower Sonoran trees
on hot slopes, dwarf mesquite, *Acacia*
bianchii, ~~eg~~ *Prosopis juliflora*
or live oak & cottonwood, while the
narrow leaved was partly replaced by
the wide leaved cottonwood along the
streams. The Lower Sonoran element
increased to where mesquite
is common & a road runner was
seen.

The canyon is full of 'icorns,
pine nuts, juniper berries, grapes,
& such food for birds & beasts &
animal life is profuse.
Several flocks of *Pharus wolweteri*
were seen & 4 birds collected - the
first I ever saw alive.

After passing Killeys Ranch
we went out on the mesa & in 5 or 6
miles it grew dark & we had
come to no water so we camped
and ate canned tomatoes & corn &
went to bed.

Oct. 15 - Ate a dry breakfast & started
on - In about half a mile came
down into San Francisco River canyon
again & had plenty of water to Alva
6 miles beyond. Have crossed the
river 5 or 2 times since leaving Frisco.
Roads sandy but generally not bad.

The valley at Alva is open
rich plains with a mixture of Upper
& Lower Sonoran species. *Yucca radiosa*
is abundant and dwarf mesquite common.
White blue oak & juniper & nut pines
cover the cold slopes of the hills & ridges.
Opuntia schottii takes the place of
screwbeans. The few ranches along
the river valley have been badly
washed out by floods. Grass is
scarce & short. Alfalfa is
the principal crop but corn & potatoes
& squashes & melons are raised
and we saw peach & apple trees.

Camped under live oaks in field half a
mile above Alva on road to Mogollon & Concho.
Packed up specimens & sent off 14 packages.
A hot day. Valley dry & baked.

Oct. 14

Left camp at 10:30 A.M. & climbed onto big mesa, then over this to base of Mts. & up long, well graded road to Mogollon, then 4 miles on up the gulch and camped in canyon about 5 miles from summit. At camp aneroid read 5200 feet, at highest part of grade 7300 feet, at Mogollon 6850 and at camp in gulch 7850.

Upper Sonoran zone runs up on hot slopes to at least 7500 feet, which is characterized by *Pinus edulis*, *Juniperus monosperma* & *Juniperus*, *Quercus grisea*, *Yucca baccata*, *Nolina*, *Dasylirion*, *Opuntia schottii*, & *Cercocarpus parvifolius*. Much of the zone is barren or open short grass mesa or slopes.

Transition zone covers the cold slopes down to the level of Mogollon, a little below 7000 feet and runs up on open north slopes to at least 8000 feet. It is characterized by scattered yellow pines, abundance of scrubby *Quercus gambelii*, *Pseudotsuga flexilis*, *Arctostaphylos*, *Garryia*, *Quercus laevis*.

Canadian zone comes in on the high N.E. slopes, mainly in gulches, as above Mogollon. *Abies concolor* & *vees globosa* and aspens follow up the gulch from about 7000 feet upward, but the cold slope above the gulch is mainly transition.

Oct. 17.

Continued ^{easterly} up the gulch 4 miles to sawmill, then over a ridge 2 miles beyond and along an old, unused, graded road for about 6 miles until dark & camped on ridge above Willow Creek. Climbed steep grades to summit but on the old road along north ~~sides~~ of mountain maintained a very uniform level.

Camp in morning 7850, Sawmill 8700, Summit 9250, highest part of graded road 9300, Camp on ridge 9000.

Above 8000 feet the cold slopes were all Canadian zone but transition reached above our highest point on south slopes. Had to travel slowly & fix road on old grade so came only about 12 miles.

Oct. 18. Started out on foot in morning & explored down Willow Cr. and up it past camp. Then in P.M. moved the wagons about a mile east to end of graded road, then left them ^{at 9000 feet} & packed down the ridge to Willow Creek 500 feet below & camped at upper edge of charivars in timber.

The beautiful creek runs in front of our camp. Transition timber covers the slope back of us and Canadian timber the slope in front while Mogollon Mountain rises high & black to the south, close by.

The creek is full of trout, deer tracks are common, and a few turkey & grouse tracks are seen along the creek.

The bottom of the creek valley below us has been charred & old deserted cabins and abandoned fields remain but the rest of forest is untouched and much of it magnificent.

The yellow pine & Douglas spruce are large and abundant and when available will be valuable timber.

Oct. 17. Remained at camp in A.M. making out Sept. acct. & writing letters to go to Mogollon tomorrow. In P.M. went down to Forest Ranger cabins 4 miles below.

Oct. 20. Sent John to town for mail & supplies with pack horse & he did not get back till dark.

Went up on ridges and killed a little white tail deer and carried it down to camp on my back. It was an old doe & weighed dressed 41 lbs., or with head and hinds just 50 lbs.

Oct. 21 - Sunday. Snowed most all day, built a fireplace in old cabin just below camp in case we should need to move in on account of storm.

Oct. 22 - Hunted all forenoon but saw only does & fawns which seem to be abundant. It snowed all of P.M. and added another inch on the ground.

Oct. 23. Went up the creek that seemed to be the highest & that I supposed was Mogollon Peak but found on top a Sierra Club tube and scroll on which this was called "White water Baldy" (an evident misnomer as the peak is densely timbered & I can find no trace of any white water to name it from).

The peak is recorded on the scroll as 10950 feet high but my aneroid read 11000 & probably did not read too high.

Another peak a few miles to the S. & a little west is equally high and more massive while another 5 or 6 miles to the S.E. is possibly higher and may be the real Mogollon Peak.

In going up the peak I followed ridges on N.E. slope all the way through dense timber, & got good zone notes. Saw a fine white tail buck (cousin) but missed him. Started a lot more deer but did not see them. Followed tracks readily on the 2 inches of fresh snow but the walking was noisy & the air very still so there was no chance to get onto deer.

Followed a fresh panther's tracks several miles until it turned south & then

I left it. Found cottontail tracks up to 10000 feet but could not get sight of a rabbit. Saw no tracks of snowshoe rabbits or grouse or turkey. Found the bones of a small bear that had been trapped but no skull.

Got back about 5 P.M. very tired as the walking was heavy.

Next 4 days tramped around camp.

Oct. 28. Took a horse & went S.E. to try and get on the highest peak in that direction but after crossing one deep canyon I found there were two more between me and the peak so gave up the trip as it would keep me out over night. Turned east thinking I would go down to the Gila (Middle Fork) and up it to camp, but it clouded up and began to rain so I started back the nearest way to camp and got back at 5 P.M.

Accomplished very little, started lots of deer but saw only one ^{little} white tail doe & did not want her.

Oct. 29. Monday. Sent John to cut several big trees out of the road so we could get back to Mogollon before a storm should box us up for the winter. Made up specimens in forenoon and in P.M. packed our outfit up to the wagons on top of ridge, 500 feet above camp at 9000 feet so we could get an early start in the morning. It rained toward evening & snowed higher up. John got back to wagons at dark & had not cut all the trees out of road.

Four prospectors came up the creek from the Gila with burro packs & from them we learned that Willow Creek is the main fork of the Middle Gila and not a branch. It begins as Willow Creek, is then called Gilita, then the Middle Fork.

Oct. 30. A clear night and only a light frost. Started at 4 A.M. and reached the top of ridge above Sawmill at 1 P.M. without trouble or accident. Had to dig out the sides of road in places and cut out a couple of trees. Found an inch of snow along the higher part of road - 9300 feet. Lunched at top & then went smoothly down the lower road to Mogollon, from 9200 to 6500 (10 miles) by 4:30. Got mail & supplies & started on but got stuck in canyon near mill & had to camp in Dead Horse Gulch just above it at 7000 feet. Ancestral road the same as on the way over. Found the upper end of Upper Sonoran as before at mile up the gulch from Mogollon at 7000 feet. Here we strike *Neurolepis*, *Alnus* true, *Juglans rupestris*, Nut pines, *Juniperus*, *Quercus grisea*, *Cercocarpus* & the whole set of Sonoran plants.

Also saw a few *Rhamnus purshiana* & a bush of *Acer grandidentata* along the creek. The shrubby oak, *A. leucophylla*? seems to be transition as it is mainly above Mogollon on cold slopes below.

Oct. 31 - Down to mouth of White water Creek & camped at ⁴⁷⁰⁰ ~~5200~~ feet at its junction with San Francisco. The San Francisco River here runs through a crooked, narrow canyon with only little patches of bottom land, but 2 miles below it opens out in a broad, fertile, well farmed valley. The White Water valley is wide enough for a series of good ranches and is mainly under cultivation. Good orchards of peach, apple & pear trees are seen and the apples we got at the store were excellent. Some are evergreen and were sent to the county fair at Socorro. Other crops raised are alfalfa, potatoes, onions, beets, turnips

Cabbage, cauliflower, beans, chili,
corn and sugar cane.

The zone of the valley is a
mixture of Lower and upper Sonoran.
The Lower Sonoran element is shown
by abundance of mesquite on the
south slopes, often 8 or 10 feet high
and full of beans. That on the mesas
& flat ground is usually dwarfed
and without beans, 2 or 3 feet high.
Catsclaw (*Mimosa biuncifera*?) is abundant
& full of beans. A few *Dasylicrion*s
are scattered over rocky south slopes,
also *Cereus* (*pityja*?), *Opuntia schottii*
& *englemanni*, and *Yucca radiosa*.
Phorodendron is abundant on cottonwood
live oaks and mesquite and full of beautiful
ripe berries. The slender leaved
Platanus is common along the
streams and *populus fremonti*
has mainly replaced *angustifolia*.
The Arizona walnut is abundant
and very fruitful.

Many species of Lower Sonoran
mammals & birds are here.

Reithrodontomys, *Onychomys torridus*,
Neotoma (cumulata?), *Peromyscus*

Spilogale,
are common.

Calipappa gambeli are abundant,
Geococcyx is common. *Dryobates* s.
bairdi has been seen twice.

Upper Sonoran dominates the
valley however with nut pine, juniper,
monosperma & *pachyphloea* & *Quercus*
gusca & *emeryi* covering north slopes
flats & mesa tops generally; and
Populus fremonti & a few *angustifolia* along
the streams, also *Alnus* (trees),
boxelder, ash, *Sapindus*, *Morus*, *Salix*
nigra & yellow willow. Both *Rhus*
aromatica ^(*copallina*) and *R.* _____ (colored leaf)
and *Rhus glabra* are common along banks and also
Cornus, *Ceanothus rigidus*, *Arceuthobium*
parvifolia. A large *Gutierrezia* is the
conspicuous open mesa plant. *Nolina* is abn.
also *Yucca baccata*. Most of the species of birds &
mammals are Upper Sonoran.

Cactus Flat

Nov. 1 to 5 - Remained at White Water Creek camp (Glenwood P.O.) trapping and collecting along San Francisco River, the creek & over mesa.

Lower Sonoran zone shows up strongly on hot slopes where the mesquite bushes are large & full of ripe bean pods. Many species of Lower Sonoran birds & mammals occur here.

Nov. 5 - Started for Cliff, followed down the Frisco valley past the Mormon settlement (Pleasanton) then up Dry Creek to Lees Station about 10 miles. Aneroid read 5000 at starting and 5100 at Lees Station where a U.S.G.S. post gives the altitude as 4884, so I set aneroid and carried the last camp reading to 4700 feet. From Lees Station we came up over mesas and ridges about 6 miles to Cactus Flat on the divide between Dry Creek & Duck Cr. and camped at 5200 feet.

Cactus Flat is open plains & mesa country with no water, but lots of grass and forests of *Opuntia schottii* & *Yucca radiosa*.

The yuccas are tree like, 6 to 10 feet high below the flower stem and the cactus is unusually large, often 10 feet high and in large bundles. The soil is rich & the abundant short grasses hold the surface soil & moisture so that vegetation is rich. A few distant ridges have junipers & nut pines on tops or stony slopes but a wide extent of country reaching to the S.W. cor. of the Mogollon Mts. is open & grassy. The Mts. rise with a steep and ragged front but with the higher peaks a little back. What is called Sacaton Peak is the big mountain I saw to the S.W. of "Whitewater Baldy" Oct. 23. It is on the very front of the range and a little snow shows over its shoulder. To the west low ridges are mainly treeless. The Fisco Canyon cuts through them.

We found *Taxotoma crissalis* & *Campylorhynchus heliodromus* in the cactus & yuccas & lots of cactus boxes

of a *Neotoma* that I do not know, so camped & hunted & set traps. *Cynomys ludovicianus* were seen here for the first time this summer. The last *gambelii* seen were above the Fisco Canyon at Fisco & Joseph.

To Cliff.

Nov. 4. Crossed the mesa 100 feet above camp and then down the long, gradual slope of Duck Creek for 20 miles to Cliff, on the Gila River. Crossed the river and camped a mile beyond the crossing ^{near} the bend of the river as it turns southwest. Started with aneroid at 5200 and found that it agreed with the G.S. posts at the White House, (4594) 4 miles north of the P.O. of Cliff, and at the hotel near our camp (4476), some 30 feet above the river.

Duck Creek valley is dry, open and grassy down to its junction with Sacaton Creek, some 6 or 7 miles above its mouth. Then it has a small stream of water and cottonwoods & sycamores along the banks, is mainly fenced & in pasture, but no one lives on it except near its junction with the Gila. ~~The~~

The Gila valley is wide and fertile below the canyon with numerous farms & ranches, dense groves of cottonwoods & willows & sycamores & some walnut, ash & boxelder.

The bottoms are sandy but rich from annual floods and generally covered with rank vegetation. Sunflowers + ragweeds grow 10 or 12 feet high in perfect jungles, Johnson Grass grows higher than my head as also do cockleburrs. The giant old cottonwoods (*P. fremontii*) are sometimes 6 or 8 feet in diameter with spreading tops, now golden in autumn foliage, are the most striking feature of the valley. The river is clear and rapid with rocks & then deep pools. There is abundance of water for irrigation and crops are good if well worked. Corn is the main crop raised and grows to great size, but is often a swamp of weeds. Alfalfa & vegetables are also raised and chili where there are Mexicans.

Lower Sonoran zone is indicated on hot slopes by some mesquite, by *Tessaria borealis*? and *Chilopsis saligna* along washes, by abundance of *Prosopis juliflora* full of beautiful berries loading the cottonwoods, willows, oaks and mesquite, by *Yucca radiosa* on mesas

& by *Rhamnus californica* in gulches. Also by *Lophortyx gambeli*, ^{*californicus*} *Geococcyx*, *Pipilo aberti*, *Dryobates s. bairdi*, *Melospiza* in summer,

And by *Reithrodontomys*, *Perognathus*, *Perodipus*, *Vulpes macrotis*, *Canis latrans*, *Spilogale*.

Nov. 7 & 8 Remained at our camp near the Yila making up specimens from Cañon Flat & along the road, setting traps & hunting in the bottoms along Yila River, and writing reports. Caught 2 kit foxes & a few other mammals.

Nov. 9. Started for Silver and after following up the dry wash of Greenhorn Creek crossed the ridge to Mangos Valley and continued up, in a few miles to stage station where we watered the horses & filled our keg & pushed on about 5 miles and camped in a dry wash where there was lots of grass. The Mangos Valley is mainly dry but springs come out in places & windmill ranches are scattered along the valley, which is surrounded by good stock country, open ridges & mesas covered with good grass a few miles back.

Yucca radiosa, *Opuntia schottii*, and dwarf mesquite are more or less abundant along the valley up to our camp, where more *Nolina* & oaks come in as we get into more pure Upper Sonoran.

Set the aneroid at camp at 4470
top of ridge 4900, Mangos Valley 4800,
left valley at 5000, camp 5400.

Nov. 10, Started early & reached
Silver City before noon. Cashied
check at bank and got mail,
then drove a mile up valley to
the best ranch in sight and
asked permission to camp.

Were given a delightful place
increased by pond with cottonwood
for shade. and birds all around us.

Learned later that Mr. Pinkerton,
our host, was a partner in the bank
with Mr. Kerr, who had previously
been of material aid to me.

Mr. Pinkerton offered his barn
for storage of my outfit.

Went to town and got Mr.
Calhoun on the phone and
settled the Hutchins matter.
Mr. Calhoun said Hutchins
had been trapping porcupines ever
since I left last May and
had caught at least 4. That he
knew of. Said they had paid
bounty on some of these &
keep Hutchins going.

Nov. 11. Sunday

Packed up our personal stuff, stored camp outfit in the stable of Mr. Pinkerton discharged my camp man & sent him home and took 6 P.M. train to Denning.

Nov. 12. Found white jacked ravens abundant in the streets of Denning and tame as doves for chickens. Took 11:30 A.M. train to El Paso & waited there for the overland Sunset Limited for New Orleans and Washington. Left El Paso at 7 P.M.

Nov. 13. Daylight near Sanderson and then dark before we reached San Antonio (at 8 P.M.)

Slight traces of frost at Del Rio and Waldo but leaves all killed and dry on Texasian at Muesel. Good cotton & other crops. Cotton not yet killed.

Nov. 14, Daylight at Houston,
slight trace of frost. Cypress
leaves partly brown & part yellow.
Good rice crop, - Threshing.
No cotton seen.

Reached New Orleans after dark
and left there on Washington Ensat
limited late in evening.

Nov. 15

Nov. 16, Reached Washington at 1 P.M.

